International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

Rationalization of Symptomatic Drug Administration to Malaria Patients in Arso Timur Public Health Center, Keerom Regency

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Abstract

Malaria Eradication Program began using ACT to replace Chloroquine which already resistant. To overcome the adverse effects of malaria medicine and to reduce the clinical symptoms of malaria disease along with clinical symptoms of comorbidities, the health personnel will provide symptomatic medication or other drugs in addition to malaria drugs. Drug administration is sometimes not just one type of drugs but a combination of several types of drugs. The rationale for the use of the drug can be achieved by adhering to existing treatment guidelines. The research was conducted through observation by using retrospective method in examining the patient's medical record on June period in 2015. The number of malaria patients' population in Arso Timur Health Center is 120. The number of samples is the total population of malaria patients in Arso Timur Health Center. The variables studied were the accuracy of diagnosis, accuracy in disease indication, accuracy in drug selection, accuracy of dose, accuracy of administration, accuracy of interval of administration, availability at any time and affordable prices, accuracy in duration of administration, and the rationalization of symptomatic drug administration. Data analysis employed Chi-Square test.

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The results showed that the percentage of accuracy of diagnosis was 29.17%, accuracy of disease indication was 23.33%, accuracy in drug selection was 45.83%, accuracy of dose was 100%, accuracy of administration was 100%, accuracy of interval of administration was 100%, availability at any time and affordable price was 100%, accuracy of duration of administration was 69.17%, and the administration of symptomatic drugs in Arso Timur health centers was 100% irrational.

Keywords: Malaria; Symptomatic Drug; Rationalization.

1. Introduction

Irrational drug use has become a worldwide problem. WHO estimates that there are more than 50% of prescribed medications, given or sold freely, and approximately 50% of patients do not get proper treatment. These problems include the unnecessary prescription and inappropriate treatment as indicated. Irrational use of drugs can have an impact on the treatment quality, medical expenses, and also can reduce the patient's sense of believe on the efficacy of the drug.

The drug should be used in an effective dose for considerable period of time, as determined by previous clinical studies. Therapeutic response and adverse events should be monitored closely. Drug dosage should be adjusted, and the appropriate treatment for the side effects that arise should be given as soon as possible [1].

Malaria is an infectious disease of global concern. The disease is still a public health problem because it often creates Extraordinary Events (KLB), has broad impact on quality of life and economy, and may result in death. The disease can be acute, latent or chronic.

Several research reports stated that there was a resistance of Plasmodium falciparum to some standard drugs such as chloroquine, quinine, sulfadoxine-pyrimethamine [2, 3]. Moreover, it was reported that Plasmodium vivax was already resistant against kolorokuin [4].

Treatment of malaria in Indonesia used the Anti-Malaria Drug (OAM) combination. What is meant by a malaria drug combination is the use of two or more anti-malaria drugs which contain the appropriate pharmacodynamics and pharmacokinetic, they have a good synergy, and have different ways of resistance [5]. In addition to the provision of OAM, to reduce the clinical symptoms of the disease and its clinical symptoms comorbidities, the health professionals providing symptomatic drugs in addition to malaria drugs. Sometimes drug administration is not only consisting of one type of drug but a combination of several types of drugs.

The incidence of malaria in Indonesian population in 2013 was 1.9 per cent decline compared to 2007 (2.9%) and the prevalence of malaria was 6.0%. Five provinces with the highest incidence and prevalence are Papua (9.8% and 28.6%), East Nusa Tenggara (6.8% and 23.3%), West Papua (6.7% and 19.4%), Central Sulawesi (5.1% and 12.5%) and Maluku (3.8% and 10.7%) [6].

In Keerom Regency, the incidence and prevalence of malaria were 9.5% 25.7% [7]. According to data from ten large Keerom regency diseases, malaria ranks second with a percentage of 18.82%. In Arso Timur health center,

in 2013, malaria ranks second with a percentage of 24.5% and in 2014, it was ranked first with a percentage of 23.12% [8, 9].

Based on the data, it is necessary to conduct a research on the rationalization of symptomatic drugs administration to malaria patients in Arso Timur Health Center, Keerom Regency. Furthermore, the research on the rationalization of symptomatic drugs administration to malaria patients in Arso Timur Health Center, Keerom Regency has never been done before. Therefore, the results of this study can be used as a basis for consideration and evaluation of symptomatic drug administration to malaria patients.

2. Materials and Methods

This research used observational study by employing retrospective method that is the research based on medical records of patients, with the hindsight of events in the past. In this case, the research was conducted in July 2015 by looking at the medical records of patients from June 2015. The data analysis that is used in this study was statistical analysis, by which it can reveal the characteristics of the patients and the percentage of symptomatic drug administration rational.

3. Results and Discussion

3.1 Overview of Malaria Patient Characteristics

Table 1 shows that the male malaria patient who got symptomatic drugs (50.83%) was higher than female patient (49.17%). The patients who received the highest level of malaria symptomatic drug were the children aged less than 15 years (45.83%). Table 1 also presents the malaria patients who have not been married showed a large percentage by having 54.17%. It is also presented that malaria patients who have a job, experienced a high percentage of 51.67%. For malaria patients who are not school also showed a high percentage by obtaining 35%.

3.2 Rationalization Symptomatic Drug Administration to Malaria Patient

1. The Accuracy of Diagnosis

Based on descriptive analysis result, it can be seen that the accuracy of diagnosis was 100%. As for the diagnosis in symptomatic or symptoms of malaria patient are fever, nausea, vomiting, and dizziness. In addition, there is also a malaria patient with a cough cold. In doing diagnostics, health personnel should have competence in the field; in this case, the doctor should pay attention to the patient's condition at anamnesis process, physical examination, and laboratory examination if necessary. The patient's condition that needs attention includes allergy history and comorbidities of the patient.

Diagnosis can be confirmed by examination of clinical symptoms, physical examination, and laboratory test results. Evidence of infection may include fever, inflammation at the site of infection, leukocytosis, and the results of laboratory tests [10, 11].

Table 1: Overview of the Characteristics of Malaria Patients who Received the Symptomatic Drug in Arso Timur Health Center

No.	Characteristics	Total	Percentage
1.	Sex :		
	Male	61	50,83
	Female	59	49,17
2.	Age :		
	Under 15 years old	55	45,83
	15 – 25 years old	16	13,33
	26 – 50 years old	31	25,83
	Over 50 years old	18	15,00
3.	Marital Status :		
	Single	65	54,17
	Married	52	43,33
	Widow/Widower	3	2,5
4.	Occupation :		
	Unemployed	39	32,50
	Employee	62	51,67
	Students	19	15,83
5.	Educational Background :		
	Not attempt school	42	35,00
	SD (Elementary)	41	34,17
	SMP (Junior High)	16	13,33
	SMA (Senior High)	12	10,00
	D3/S-I (University Level)	9	7,50

Table 2: Accuracy of Diagnosis

The Accuracy of Diagnosis	Total	Percentage
Accurate	120	100
Inaccurate	0	0
Total	120	100

2. The Accuracy of Disease Indication

Table 3: The Accuracy of Disease Indication

The Accuracy of Disease Indication	Total	Percentage
Accurate	28	23,33
Inaccurate	92	76,67
Total	120	100

On descriptive analysis result, it can be identified that the administration of symptomatic drugs in malaria patients which have appropriate indication was 23.3% and the administration of symptomatic drugs without appropriate indication was 76.67% .Inaccuracy indications found in Arso Timur health center including the administration of drugs such as antibiotics (amoxicillin and Cotrimokasozole) in patients who do not have diagnosis infection or symptoms that require treatment with antibiotics. Besides that, there was no clear indication for prescription of antihistamines to malaria patients in Arso Timur health center, whether it was influenced by ARI (Acute Respiratory Infection) which is the most disease before malaria disease. There is an indication that determines the accuracy of the selection of the appropriate therapeutic agent. An accurate indication should be based on an accurate diagnosis, for example, an antibiotic is given only when proven cause is a bacterial disease [12, 13, 14].

3. The Accuracy in Drug Selection

Table 4: The Accuracy in Drug Selection

The Accuracy in Drug Selection	Total	Percentage
Accurate	55	45,83
Inaccurate	65	54,17
Total	120	100

Based on descriptive analysis result, it can be seen that the administration of symptomatic drugs to patients in the appropriate selection of malaria drugs was 55% and symptomatic drug administration which were inappropriate drug selection reached 65%. The inaccuracy of drug selection in Arso Timur health centers includes not only the class therapies and types of drugs, but also in terms of efficacy and safety of drugs, including the possible risk of side effects, price, and quality of the drug [12,13,14].

4. The Accuracy of Dose

Table 5: The Accuracy of dose

The Accuracy of Dose	**Total**	**Percentage**
Accurate	120	100
Inaccurate	0	0
Total	120	100

Based on descriptive analysis result, it can be seen that the dose accuracy in symptomatic drug administration to the patients of malaria was 100%. The accuracy of dose means a dose, amount, manner, time and duration of drug administration must be accurate. When one of the four it is not fulfilled, the therapeutic effect will not be achieved.

The administration of the drug at a dose exceeding the maximum dose can be done if the back of the amount concerned in prescription drugs spiked with exclamation marks and the initials of prescribers [15].

5. The Accuracy of Administration

Table 6: The Accuracy of Administration

the accuracy of administration	**Total**	**Percentage**
Accurate	120	100
Inaccurate	0	0
Total	120	100

Based on descriptive analysis results, it can be seen that the accuracy of of symptomatic drug administration to malaria patient was 100%. Drug administration is a drug usage rule that must be considered by the patients. Each drug has different rules of usage. The rules of use of these drugs include drug usage time (before, after, or simultaneously with food), the frequency of administration, and the route of administration of drugs [12, 13, 14].

6. The Accuracy of Drug Administration Interval

Table 7: The Accuracy of Drug Administration Interval

The Accuracy of Drug Administration Interval	**Total**	**Percentage**
Accurate	120	100
Inaccurate	0	0
Total	120	100

In this study, the accuracy of drug administration interval was 100%, which means that the administration of drug dosing interval is in conformity with a half-owned by the drug. Drug administration interval is closely related to clinical pharmacokinetics of the drugs. The levels of drug in the blood fluid are the result of the magnitude of the administered dose, and the effects of natural processes in the body such as the absorption, distribution, metabolism and excretion of the drug [12, 13, 14].

7. The Availability and Affordable Price Of Drugs

Table 8: The Availability and Affordable Price of Drugs

The Availability and Affordable Price Of Drugs	**Total**	**Percentage**
Accurate	120	100
Inaccurate	0	0
Total	120	100

Based on descriptive analysis result, it can be seen that the availability and affordable price of symptomatic drugs was 100%, since all patients are patients of BPJS. Drug management in city / regency Pharmacy Warehouse (GFK) and health centers will support the availability of drugs that increase the coverage of health services at the health center. LPLPO application in the system of recording and reporting of drugs in GFK will provide a variety of data and information that is needed for the calculation and distribution of the drug in needs of inventory control drug activity [16, 17].

8. The Accuracy of the Duration of Administration

Table 9: The Accuracy of the Duration of Administration

he Accuracy of the Duration of Administration	**Total**	**Percentage**
Accurate	83	69,17
Inaccurate	37	30,83
Total	120	100

Based on descriptive analysis result, it can be seen that the percentage accuracy of the duration of drug

administration was 69.17%, while the inappropriate duration of administration was 30.83% .The inappropriate drug administration is caused by administration of unnecessary drugs to the patients, such as providing antihistamines or corticosteroids in patients who do not have any complaints / symptoms of allergies and the flu. The use of an antihistamine drug classes for a long time can cause side effects such as loss of therapeutic effect of these groups, because the duration of use and indication are not clear [12,13,14].

4. Conclusion

Based on the result of the research conducted in health center of Arso Timur, Keerom Regency, it can be summarized as follows:

1. The percentage of accuracy of diagnosis was 100%.
2. The percentage of accuracy of disease indications was 23.33%.
3. The percentage of accuracy in the selection of drugs was 45.83%.
4. The percentage of accuracy of dose was 100%.
5. The percentage of accuracy of drug administration was 100%.
6. The percentage of accuracy of interval administration was 100%.
7. The percentage of availability at any time and affordable price is 100%.
8. The percentage of accuracy of duration of administration was 69.17%.
9. The administration of symptomatic drugs in Arso Timur health centers was 100% irrational.

Recommendation

1. It is needed to do more research on the factors that influence the accuracy of disease indications, drug selection and duration of administration.
2. It is needed to do the monitoring and evaluation of symptomatic drug administration to the malaria patient.
3. In prescribing, it should refer to the rational drug use module which published by the Ministry of Health.
4. It is needed to have training on rational drug use.
5. It is needed to set up the Committee of Pharmacy in Health Office of Keerom Regency, in order to carry out monitoring and evaluation in the administration of drugs in every health centers located in Keerom Regency.

References

[1] Advenice C, Queille-Roussel C, Rational use of histamine in allergic dermatological,drugs, 38(4):634-44,1989

[2] Badan Penelitian dan Pengembangan Kesehatan. 2013. Riset Kesehatan Dasar.

[3] Badan Penelitian dan Pengembangan Kesehatan. 2013. Riset Kesehatan Dasar. Provinsi Papua.

[4] Bahaudin, Nasirah.2010.Implementasi Kebijakan Penggunaan Obat Rasional (POR) Di Indonesia, Presentasi Power Point.Direktur Bina Penggunaan Obat Rasional, Ditjen Bina Kefarmasian dan Alat Kesehatan, Departemen Kesehatan RI, Jakarta.

[5] Depkes RI. 1998. Materi Pelatihan Penggunaan Obat yang Rasional untuk Dokter Puskesmas. Jakarta :

Depkes RI.

[6] Depkes RI. 2000. Pedoman Pengelolaan Obat Daerah Kabupaten/Kota. Ditjen POM Depkes RI, Jakarta.

[7] Dinas Kesehatan Keerom. Data Sepuluh Besar Penyakit di Kabupaten Keerom 2013.

[8] Dinas Kesehatan Keerom. Data Sepuluh Besar Penyakit di Kabupaten Keerom 2013.

[9] Dwiprahasto, I.1999.Modul Manajemen Obat, Magister Manajemen Pelayanan Kesehatan. Yogyakarta: UGM.

[10] Farmakope Indonesia III. 1997. Jakarta

[11] Holden, J, et al.1996. The Quality of Prescribing in General Practice, International Journal of Health Care Quality Assurance, 9 (5) : 17-k21.

[12] Kaplan, et al.2010. Sinopsis Psikiatri, Jilid Kesatu. Diterjemahkan oleh Binarupa Aksara. Jakarta: Bina Rupa Aksara.

[13] Kementerian Kesehatan. 2011. Modul Penggunaan Obat Rasional.Jakarta.

[14] Kementerian Kesehatan. 2013. Peraturan Kementerian Kesehatan No. 5 Tahun 2013 tentang Pedoman Penatalaksanaan Malaria.Jakarta.

[15] Tjitra, E., et al. 2008a. Multidrug-resistant Plasmodium vivax malaria associated with severe and fatal malaria: A prospective study in Papua, Indonesia. Plos Med.

[16] Tjitra, E., et al. 2008b. Efficacy of cloroquine, cloroquine plus sulphadoxine pyrimethamine, and amodiaquine for treatment of vivax malaria in Bangka island, Indonesia a randomized trial. Med J Indonesia.

[17] WHO. 2010. Guideline for the treatment of Malaria.